Cobb MX Male

Management Supplement

2026

cobbgenetics.com

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This Cobb MX Male Management Supplement should be used with the Cobb Breeder Management Guide to support your program.

Management must meet the basic needs of the stock but also be optimized to attain the full potential of the breed. Our recommendations are based on current scientific knowledge and practical experience and reflect the genetic potential of the Cobb MX Male.

This information should be used as a guide only and adapted locally according to your own experience and infrastructure. You should be aware of any local legislation which may influence the management practices that you choose to adopt.

The MX Male Characteristics

The Cobb MX male originates from a unique heritage and has a great balance between breeder and broiler performance. It has excellent leg quality, mobility and livability resulting in high fertility throughout the production cycle. These leg traits and livability are passed to broiler progeny along with enhanced feed conversion and growth.

Under normal conditions, the Cobb MX male matures rapidly after photostimulation resulting in advanced comb development. It has a large comb and becomes restricted from the female feeder shortly after mixing. It is essential to meet the nutritional requirements to maintain correct growth and body composition, which, in turn, will support a high level of mating activity.

Cobb Parent Stock Male facts in numbers

Male genetic impact on the broiler supply chain	50 %
Typical percentage of males in a production flock	9 to 11 %
Male's individual contribution to flock fertility versus each female	10 times

To maximize genetic potential

- To maximize the genetic potential for fertility related traits, never allow males to stop gaining weight or lose weight.
- Support rapid testis development in the four weeks after transfer by preventing any disruption in growth during this time.
- Do not allow males to become overweight in production as they will have difficulty mating.

For more technical information download our resources at:
https://www.cobbgenetics.com/resources

Feeding the MX Male

It is common for producers to provide the same feed formulated for females to both males and females in rearing and early lay because:

- Male and female nutrient requirements are largely alike during the rearing phase and begin to diverge during the production phase.
- Feed mill limitations and logistical constraints make it difficult to feed separate sex feed formulation.

When using female feed formulation for males, keep in mind that feed formulation may vary based on the female breed being used. Therefore, the male feed intake amount will require adjustments to provide the energy and nutrient the males need to attain the target body weight and conditioning. Cobb female feed formulations are available for each of our breeds on our website (Cobbgenetics.com/resources).

Three feeding plan options for rearing and early lay are described based on the Cobb female paired with the MX Male. Regardless of the feed plan, Cobb recommends feeding males the same feed as females for at least 25 weeks. Males can be switched to male feed at 27 to 28 weeks depending on the female feed formulation and feed change timing,

Continuing to use female feed in production through depletion is also an option but Cobb recommends using a lower calcium pullet feed as opposed to a Breeder feed. When Breeder feed is fed to males throughout production, controlling male weight gain and fleshing may require additional effort. However, careful control of male feed intake throughout production, coupled with an effective spiking program, can produce good fertility performance.

Feeding the MX Male in Production

Male feed plan (page 18)

A male feed is the best way to provide the caloric, amino acid and calcium needs of males. This feed plan is formulated and designed specifically for males. It has lower energy and amino acids than Breeder feed so that higher volumes of feed can be given. Moreover, using male feed can help control weekly weight gain and fleshing. If providing a male feed, it is recommended to switch between 25 and 28 weeks based on the female breed and recommended feed formulation for that female .

The Cobb500 feed plan

This feed plan is formulated for Cobb500 breeders. Changes between feed types (starter, grower, developer, breeder) are strategically timed to prepare pullets for photostimulation and hens for good production performance and persistency. Males can be fed the same feed formulas as Cobb500 females up to 28 weeks. Cobb recommends switching to male feed at 28 weeks,

The Cobb800 feed plan

The Cobb800 feed formulations and timing of feed changes are designed specifically to support the Cobb800 breeder which matures rapidly and begins egg production rapidly after photostimulation. Males can be fed the same feed plan as Cobb800 females up to 25 weeks. It is recommended to switch to a male feed no later than 27 weeks to control male body weight and fleshing.

If you have questions regarding which feed plan is right for your operation, Cobb technical representatives are available to help.

Male Management

To obtain good fertility, develop feeding and management programs that support the development of the male reproductive system while controlling the growth rate and capacity to deposit breast muscle. The male growth profile is the most important factor correlated with flock fertility. Weigh males at least weekly from 1 to 30 weeks of age and every other week thereafter. Always handle males by both legs.

Recording growth and production including fleshing, bodyweight, feeding program, uniformity, and male ratio can help optimize performance.

- The recommended male stocking density at placement is 3.6 males/m² (3.0 ft²/male). Local legislation or animal-welfare regulations should always take precedence, and stocking densities must be adjusted accordingly
- Apply beak conditioning in the hatchery or at the farm between 5 to 8 days of age (based on chick quality) to improve feed consumption and uniformity.
- Provide correct feed increases to achieve the weekly weight goal. Due to enhanced feed efficiency, use caution and do not overfeed especially after moving to the production house.
- Sexual synchronization with females is crucial for optimum hen house performance (fertility/hatchability).
- Weigh and handle males frequently to closely monitor fleshing and body conformation.
- After photostimulation, overweight males tend to mature quickly leading to poor sexual synchronization. This situation can cause slating of hens, mortality and floor and slat eggs. Overdeveloped males can be used as spike males.

Rearing

A good start in rearing is essential for uniformity, and good organ and skeletal development. Each correlates with male fertility potential. Remove suboptimal males regularly in the early part of rearing (1 to 12 weeks of age) to maximize fertility.

For best results, rear males separately from females. Sufficient light intensity and duration must be provided to ensure the correct feed amount is consumed during brooding.

Adequate feed, water and housing equipment are paramount to establishing flock uniformity and maintaining high flock fertility. The recommended male stocking density at placement is 3.6 males/m² (3.0 ft²/male). In addition to floor space, sufficient feeder space is important so all males can eat simultaneously. Rapid, even feed distribution is essential for producing a highly uniform flock.

If moving to slatted houses, males must quickly identify and access water lines to ensure body condition does not stagnate or regress after housing with females. For males to find water easily on the slats, it is important to train the males in rearing. For example, use chain feeders at a height that requires the males to jump over the troughs to get to the water lines. This will enhance mobility and enable males to jump on the slats after moving to the production house. It is crucial for males to find the water line on top of the slats when water is not available in the scratch area. In rearing, training slats can be placed under the water lines 40 to 45 cm (15.7 to 17.7 in) high, to mimic the production house and teach males to jump on a slat to access water.

Table 1 Feed Space Guidelines

Age (weeks)	Chain		Round Pan	Oval Pan	Manual Tubular
	cm	in	Birds / pan	Birds / pan	Birds / pan
0 to 4	6.0	2.5	20 to 22	23 to 25	20 to 22
5 to 8	10	4.0	14 to 16	16 to 18	14 to 16
9 to 12	14	5.5	12 to 14	12 to 14	12 to 14
13 to 21	19	7.5	10 to 12	10 to 12	10 to 12
Production	20 to 25	9 to 10	8 to 10	10 to 12	8 to 10

Body Weight Management and Uniformity

Body weight development during the first 8 weeks largely determines adult frame size. Heavy males tend to develop a large frame, therefore male weights should be kept close to standard from 4 to 16 weeks of age.

To help stay on standard, separate the heaviest males at 3 to 4 weeks of age by grading. During the 4 week grading, 10% of the lightest males can be removed if there are enough males in the flock. Another grading can be done at 8 weeks, handling all males and removing suboptimal males with visual defects including crooked and bent toes, and spine, eye, or beak abnormalities.

Flocks with poor uniformity at 15 to 16 weeks can be graded on breast conformation and wing resistance. Place the smallest males in a separate pen and give them supplemental feed to help improve sexual development and conformation uniformity. The goal is to have >95% of the males correctly conditioned by 20 weeks of age.

Maintaining flock uniformity is extremely important in managing high yielding males. This includes uniformity of body weight, frame size and breast conformation or fleshing. Uniform males maintained close to the Cobb standard weight have good mobility, high mating frequency and complete matings.

Males should never lose weight at any age!

Research shows that sperm production potential is established at an early age. Males subjected to stress accompanied by a weight stall or decline in the first 15 weeks of life may lose reproductive potential.

Sexual Synchronization with Females

Sexual synchronization between males and females is largely influenced by male body weight from 12 to 20 weeks of age and the differences in body weight between the sexes. A properly synchronized flock will have high hen receptivity and mating efficiency. To determine the correct male ratio, also consider the following:

- Weight difference between males and females at mixing.
- Body composition, frame size and maturity development between males and females at mixing.
- Genetics will impact maturation rates, temperament and activity levels among male breeds. The Cobb MX Male tends to mature at an early age. Body weight and fleshing must be strictly managed from puberty (12 weeks of age) to 20 weeks of age.

Maximizing male fertility and persistency depends on controlling the male weight from mixing to flock depletion. Generally, the body weight difference between males and females at mixing should range from 15 to 25% depending on the Cobb female used. By 30 weeks of age, when sexual activity peaks, the weight difference can be 8 to 15%.

Transferring from Rearing to Production Houses

Use the same lighting program for Cobb MX Males and females to support sexual synchronization. Ensure that positive growth occurs in the first 4 weeks after photo stimulation when testes undergo rapid development (Table 2).

For best results, mix females with males that have similar body weights. Mating heavy males with heavy females, and light males with light females will enhance hen receptivity and mating efficiency. Heavy males with no visible defects (skeletal or leg problems) can be used for spiking while small or suboptimal males should be removed.

Monitor weights weekly and adjust feed accordingly. It is a good management practice to observe eating behavior. If males are consuming feed from the female feeder, it may be necessary to keep the male feed amount constant for several weeks and increase the female feed amount to compensate for the feed males are consuming. Please consult with Cobb technical service about alternative feeding options.

Over feeding after transfer may cause large and over-fleshed males, which will require additional energy for body weight maintenance. Males may exceed the standard body weight by consuming feed from the female feeders. If the male body weight increases too rapidly after transfer, make adjustments in feed intake to slow male weight gain. Frequent handling and flesh scoring are the best ways to evaluate males and guide the feeding program.

Table 2 Example of Correct Testicle Development

Age (weeks)	21	22	23	24	26	28
Testes (g)	0.5	2	18	24	43	47
Body weight (g)	3000	3190	3360	3500	3750	3960
(lb)	6.61	7.03	7.40	7.71	8.26	8.72
% Testes/ Body weight	0.02%	0.06%	0.56%	0.69%	1.15%	1.19%

Male to Female Ratio

Male quality is the most important factor used to determine the correct male to female ratio at mixing. Male quality evaluation should be focused on body weight, flock uniformity, and fleshing. In general, at transfer, mix 10 to 11.5 % males with females.

The male ratio can be adjusted according to the sexual maturity of the males and females and the availability of housing to hold extra males for spiking.

- Excessive male weight and advanced male maturity could cause slating of young hens.
- When spiking is performed, lower mixing ratios can be considered at photostimulation.

If male maturation is **ahead** of the female, consider the following options:

- Reduce intensity to 1 to 2 lux (0.1 to 0.2 foot candle) in rearing to delay sexual development.
- Strictly manage body weight from 12 to 20 weeks of age. If average male body weight is not on standard, adjust feeding schedule to bring the flock back to standard.
- Females can be moved 1 week before males to allow females an additional week to mature.
- Begin with a lower male ratio when mixing. Mix 8 to 9% males. Increase weekly to 10 to 11.5 %.

If male maturation is **behind** the female, consider the following options:

- Maintain 10 lux (1 foot candle) light intensity during rearing for males if they are reared separately from females, otherwise follow females' light program. Insufficient light intensity during rearing may delay maturity.
- Increase weekly body weight gain for males between 18 to 21 weeks.
- House and photostimulate males up to one week earlier than females to train them to the male feeder and accelerate maturation. This can also be done in rearing when males have their own rearing house.
- Begin with a higher male to female ratio at mixing. Start with a 12 to 13% ratio and reduce the ratio weekly, or as needed.

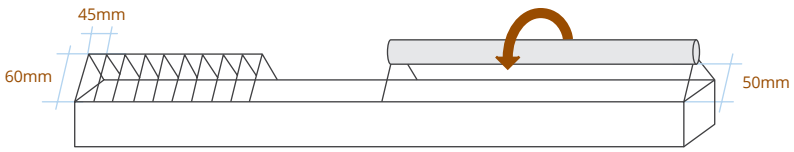
Separate Sex Feeding

Adequate feed distribution is critical for uniform growth in the production cycle. Different feeding systems should be managed to distribute a measured amount of feed per male as quickly and uniformly as possible.

It is highly recommended to use Separate Sex Feeding (SSF) in production. A typical SSF plan would include a male exclusion system placed on the female feeder (grill, roller bar, plank or wooden board) and a line of pans, troughs or tube feeders for the males.

The exclusion grill should create a vertical 60 mm (2.4 in) and horizontal 45 mm (1.8 in) restriction. With a plank or roller bar, the vertical restriction should be 50 mm (2 in). This type of system can serve a dual purpose in countries that mandate a minimal area for bird perching. The MX Male will quickly develop a large comb that will exclude him from the female feeder system by 23 to 24 weeks.

Different exclusion methods on a female track feeder.
A grill on the left and a roller bar on the right.



It is equally important to keep the females from eating from the male feeder. Keep the male feeder at a height that requires the males to stretch slightly while eating and prevents female access. The entire male feeder should be stable and not allowed to swing. Feeder height must be adjusted based on feeding behavior at least once a week up to 30 weeks of age. Position feeders away from other equipment that would allow females to perch and access male feeders.

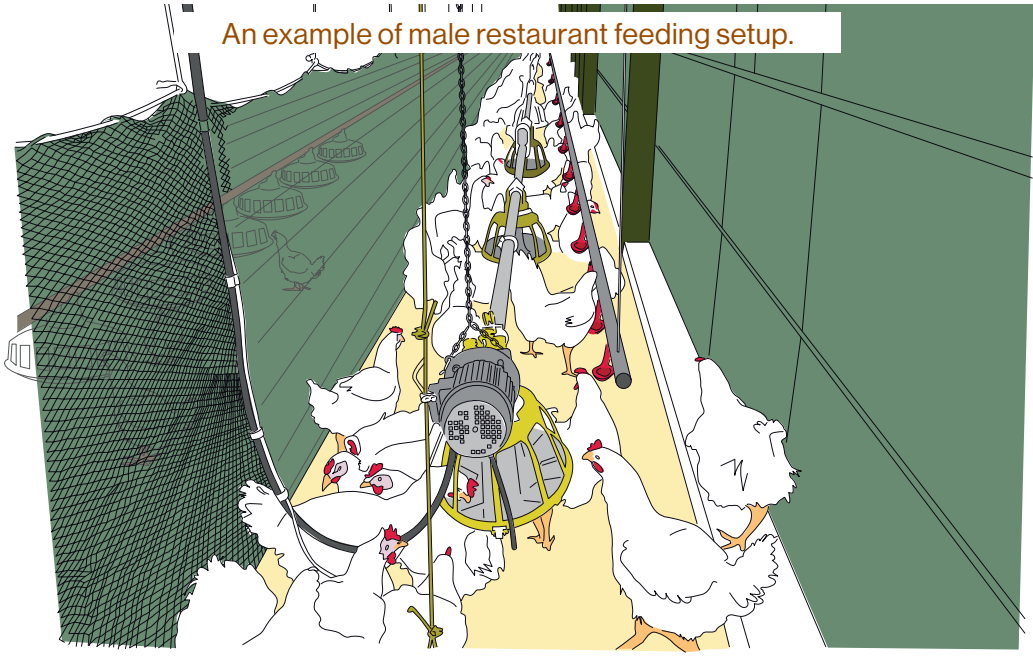
SEX SEPARATE FEEDING

Male Restaurant Feeding

Some house setups allow restaurant feeding for males to ensure they consume their feed. There are multiple ways to implement restaurant feeding. A common design is to drop a separation net during feeding to have the males eat from their own feeding systems (see illustration below). Before lifting the net (releasing the males), make sure that females have finished their feed.

It is best to incorporate a male drinker line within the restaurant area. This allows the males to drink while females are still consuming feed. If there is no drinker line in the male restaurant area, males should be released after their feed is consumed (45 to 50 minutes).

An example of male restaurant feeding setup.



Training Males for Separate Sex Feeding (SSF)

Males need to quickly identify and use their feeders. Ideally, the same type of male feeder in rearing should be used in production. In houses where pan feeders are used during rearing, training should include a mini slat (60 to 70 cm, or 2 to 2.3 ft wide) under the drinker line to help train males to jump.

The male feeder should be on a winch system so that it can be raised and refilled daily to prepare for the following day's feeding. It is essential to ensure that all pans are being used and receive the same feed quantity to provide all males with access to feed. Under normal circumstances, the female feeder is usually started first to move females to their feeder before the male feeder is lowered.

After 30 weeks, feed allocations should be modified according to weight trends. Ideally, small increases of feed should be provided to maintain a slight weight increase throughout the production period and ensure all males are receiving sufficient nutrition to sustain activity level and interest in females.

Managing Male Condition in Production

Productive males have uniform red colored combs, wattles and eye rings. Beaks should be rounded with no sharp edges that may cause injury to females or other males.

Regressing or sub-optimally conditioned males first exhibit a loss of color around the eyes. Management intervention to recover these males include separating them from the flock and providing additional feed for several days. Males that have lost all color in the comb and wattles should be removed from the flock. Testicular regression in these males is irreversible.

In addition to weight control, male conformation and fleshing should be monitored to help gauge male condition. Breast fleshing should be frequently palpated by hand with the objective of maintaining a "V" shape for as long as possible. Fleshing should cover the tip of the keel. However, the keel should still feel prominent. (See table 3 for males' optimum fleshing scores, pg 15).

Explanation of fleshing scores

FLESHING 1

Severely under conditioned breast and very thin. No wing resistance. Unacceptable male.

Not Acceptable

FLESHING 2

Thin breast from top (wing area) down. More keel bone exposed. Flaccid wing resistance.

Lean

FLESHING 2.5

V shaped breast with more fleshing in upper breast part near the wings. Stronger wing resistance and minimum condition for most males for good fertility.

Ok

FLESHING 3

More rounded breast with more breast deposition on the side of the keel. (Similar to fleshing 2.5, fleshing 3 is good and preferred for males during the production period.)

Ok

FLESHING 4

Wide breast on top (wing area) and down to end of the keel. This condition will become more noticeable after 50 weeks.

Too Heavy

FLESHING 5

Very wide breast (dimple in keel area). Severely over fleshed male for all the male lines. Fertility would be negatively affected.

Excessive

Table 3

Optimum Fleshing Score for Males

Age (weeks)	1	2	2.5	3	4	5	Fleshing Score (Weighted Average)
20		25%	50%	25%			2.50
25		15%	55%	30%			2.60
30		5%	60%	35%			2.65
35		3%	60%	35%	2%		2.70
40		1%	53%	40%	6%		2.80
45		1%	50%	40%	9%		2.85
50			45%	43%	12%		2.90
55			40%	45%	15%		2.95
60			30%	55%	15%		3.00

The pictures below show how to evaluate male fleshing. Males with prominent keels are usually scored a 2 (left), males with V shaped breast with more fleshing in upper breast are usually scored a 2.5 (middle), while males with fleshing that reaches and covers the keel on both sides are usually scored a 3 (right).

A breast conformation score between 2.5 and 3 is ideal at peak production while a small percentage of males will move to a 4 toward the end of the production period.

Unproductive males should be removed from the flock. In production, a male selection based on body weight and condition produces good male uniformity and enhanced fertility. The best results are achieved when selections are done at 25, 35, 45 and 55 weeks. This management technique may be most beneficial when spiking is not an option.

Spiking

Spiking is the addition of males into a flock to compensate for the decline in fertility. The decline can be due to decreased mating interest (natural post 35 to 40 weeks of age), reduced sperm quality (natural post 55 weeks), diminished mating efficiency (males with physical conditions such as weight or leg and feet disorders) and excessive male mortality reducing the male to female ratio. There are two ways to rear spike males.

- Extra males are moved to a separate house/farm at transfer and held until moved to flocks. Alternatively, the males are housed with the flock, but held in a separate pen until used to spike that flock.
- Designated houses are used to raise spike males. When using a separate spike male rearing farm, the number of primary males placed at day-old can be reduced to 10 to 11.5%.

Spike flocks back to 10 to 11.5% when the male ratio goes below 9%. Spike with a minimum of 20 % spike males to increase the ratio back to 10 to 11.5%. Spiking with an insufficient number of males is generally ineffective as primary male dominance can cause high mortality of spiking males.

Spike males should be good quality and free of physical defects. It is common to increase body weight standards for males if spiking programs are used. Males must be at least 25 weeks of age with a minimum weight of 4.1 kg (9 lb) and sexually mature. Body weights of spike and primary males should be as close as possible to ensure a high success rate.

Regularly remove suboptimal primary males to accurately determine the remaining male ratio.

A slight feed increase for males right after spiking (2 to 3 g/bird/day, or 0.45 to 0.65 lb/100 birds/day) could be beneficial since spiking significantly increases male mating activity.

Benefits of spiking

Improved sperm quality
Increased mating activity
Increased fertility
Improved hatch of fertile

Flock data indicates that having a spiking program in place prior to a fertility decrease, produces the best results. Many times, historical flock data can help guide when a flock should be spiked. For optimal results, spike the flock between 35 and 40 weeks of age. Spiking once in the life of the flock is normally sufficient. Flocks spiked twice with 8 to 10 weeks between spiking, also produce good results. Spiking is usually not economical beyond 55 weeks of age.

One of the greatest risks with a spiking program is the possibility of introducing disease or parasites into the spiked flock. Spike males should come from a single source flock. The source flock should be tested 5 to 7 days before moving. Moves should be postponed for any positive or suspect results.

Intra-Spiking

With intra-spiking, 25 to 30% of primary males are exchanged between houses from the same farm, to stimulate mating activity. Intra-spiking improves fertility when done relatively early in production (<45 weeks) and two intra-spikings, done at 40 and 48 weeks of age, can produce better results. Intra-spiking is inexpensive, easy-to-practice, and most importantly, rarely presents a biosecurity risk.

Body Weight and Nutrient Intake Guide for MX Males in Rearing

Age		Body Weight*		Nutrient Intake (/bird/day)		
Days	Weeks	g	lb	Energy (kcal)	Protein (g)	dig. Lys (mg)
7	1	150	0.33	68	3.0	113
14	2	350	0.77	97	4.3	162
21	3	545	1.20	130	5.8	216
28	4	725	1.60	154	6.8	257
35	5	870	1.92	157	7.0	261
42	6	1010	2.23	167	7.4	279
49	7	1130	2.49	170	7.6	284
56	8	1245	2.74	173	7.7	288
63	9	1360	3.00	176	7.8	293
70	10	1470	3.24	178	7.9	297
77	11	1580	3.48	181	8.0	302
84	12	1710	3.77	184	8.2	306
91	13	1845	4.05	192	8.5	320
98	14	1975	4.35	200	8.9	333
105	15	2110	4.65	208	9.2	347
112	16	2240	4.93	216	9.6	360
119	17	2385	5.25	230	10.2	383
126	18	2535	5.58	243	10.8	405
133	19	2680	5.90	257	11.4	428
140	20	2840	6.26	270	12.0	450
147	21	3000	6.61	284	12.6	473
154	22†	3190	7.03	297	13.2	495
161	23	3360	7.40	305	13.6	509

*Weights correspond to the weekly age based on the placement or hatch date.

† First wet body weight or with feed in the crop is at 22 weeks.

Body Weight and Nutrient Intake Guide for MX Males in Production

Age		Weight		Nutrient Intake (/bird/day)		
Days	Weeks	g	lb	Energy (kcal)	Protein (g)	dig. Lys (mg)
168	24	3500	7.71	313	13.9	522
175	25	3620	7.97	319	14.2	531
182	26	3750	8.26	324	14.4	540
189	27	3870	8.53	329	14.6	549
196	28	3960	8.72	338	15.0	563
203	29	4030	8.88	346	15.4	576
210	30	4090	9.01	351	15.6	585
217	31	4140	9.12	356	15.8	594
224	32	4180	9.21	359	16.0	599
231	33	4210	9.27	362	16.1	603
238	34	4235	9.33	362	16.1	603
245	35	4260	9.38	365	16.2	608
252	36	4285	9.44	365	16.2	608
259	37	4310	9.50	367	16.3	612
266	38	4335	9.55	367	16.3	612
273	39	4360	9.61	370	16.4	617
280	40	4385	9.66	370	16.4	617
287	41	4410	9.72	373	16.6	621
294	42	4435	9.77	373	16.6	621
301	43	4460	9.83	375	16.7	626
308	44	4485	9.88	375	16.7	626
315	45	4510	9.94	378	16.8	630
322	46	4535	9.99	378	16.8	630
329	47	4560	10.05	381	16.9	635
336	48	4585	10.10	381	16.9	635
343	49	4610	10.16	383	17.0	639
350	50	4635	10.21	383	17.0	639
357	51	4660	10.27	386	17.2	644
364	52	4680	10.31	386	17.2	644
371	53	4700	10.35	389	17.3	648
378	54	4720	10.40	389	17.3	648
385	55	4740	10.44	392	17.4	653
392	56	4760	10.49	392	17.4	653
399	57	4780	10.53	394	17.5	657
406	58	4800	10.57	394	17.5	657
413	59	4820	10.62	397	17.6	662
420	60	4840	10.66	397	17.6	662
427	61	4860	10.71	400	17.8	666
434	62	4880	10.75	400	17.8	666
441	63	4900	10.79	400	17.8	666
448	64	4920	10.84	402	17.9	671
455	65	4940	10.88	402	17.9	671

Recommended Nutrient Levels for **Cobb MX Males**

	Unit	Male
Metabolizable Energy	MJ/kg	11.27
	kcal/kg	2700
	kcal/lb	1225
Crude Protein	%	12.0
Calcium	%	0.95
Av. Phosphorus	%	0.42
Sodium	%	0.17 to 0.24
Chloride	%	0.17 to 0.24
Potassium	%	0.60
Linoleic Acid	%	1.40
Digestible Amino Acids to Achieve Balanced Protein		
Lysine	%	0.45
Methionine	%	0.25
M + C	%	0.65
Tryptophan	%	0.14
Threonine	%	0.38
Arginine	%	0.63
Valine	%	0.46
Isoleucine	%	0.37
Leucine	%	0.63
Histidine	%	0.20
**Digestible Amino Acid Ratios to Digestible Lysine Recommended Digestible Amino Acid Levels Based on Amino Acid / Lysine Ratios		
Lysine	%	100
Methionine	%	56
M + C	%	145
Tryptophan	%	30
Threonine	%	85
Arginine	%	140
Valine	%	103
Isoleucine	%	82
Leucine	%	140
Histidine	%	45

Supplementary Vitamins and Trace Elements

		Starter / Developer / Male		Breeders in Production	
Nutrients	Unit	Per kg	Per lb	Per kg	Per lb
Added Vitamins in Finished Feed					
Vit. A (Maize Diets)	IU	11,600	5,273	14,500	6,591
Vit. A (Wheat Diets)	IU	12,400	5,636	15,500	7,045
Vit. D3	IU	3,840	1,745	4,800	2,182
Vit. E	IU	96	44	120	54.5
Vit. K	g	6.4	2.9	8.0	3.6
Thiamine (B1)	g	4.0	1.8	5.0	2.3
Riboflavin (B2)	g	14.4	6.5	18	8.2
Pantothenic Acid	g	17.6	8.0	22	10.0
Niacin	g	48	21.8	60	27
Pyridoxine (B6)	g	5.6	2.5	7.0	3.2
Folic Acid	g	3.2	1.5	4.0	1.8
Vit. B12	g	0.05	0.022	0.06	0.027
Biotin (Maize Diets)	g	0.40	0.18	0.50	0.23
Biotin (Wheat Diets)	g	0.48	0.22	0.60	0.27
Added Minerals in Finished Feed					
Manganese	g	120	55	120	55
Zinc	g	120	55	120	55
Iron	g	40 to 60	18 to 27	40 to 60	18 to 27
Copper	g	14 to 20	7 to 10	14 to 20	7 to 10
Iodine	g	2.5	1.14	2.5	1.14
Selenium	g	0.3	0.14	0.3	0.14
Suggested Minimum Inclusion in Finished Feed					
Choline	mg	1400	636	1400	636
Linoleic acid	%	2.0	0.91	2.0	0.91

IU = International units
Supplementary levels of vitamins and trace elements should always be reviewed to ensure total levels do not exceed those set in local legislation.
Inclusion levels for trace minerals are based on formulations with inorganic forms. If using organic or chelated minerals, please contact the supplier for inclusion value adjustments.

Notes

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